

ABSTRACT OF THE DISCLOSURE

A cutting element retention apparatus wherein a support element forms at least a portion of the cutting element pocket. A steel body rotary drill bit carrying at least one generally cylindrical cutting element within a cutting element pocket wherein a support element forms at least a portion of the cutting element pocket is also disclosed. A support element may form at least the substantially planar surface of the cutting element pocket configured to matingly engage at least a portion of a substantially planar surface of a generally cylindrical cutting element distal to the cutting face thereof. Alternatively, a support element may form substantially the entire cutting element pocket. The support element may be press-fit, shrink-fit, brazed, welded, or otherwise affixed within the steel body rotary drill bit. Methods of manufacture and repair of steel body rotary drill bits are also disclosed.

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